Nematology Circular No. 14
March 1976

Fla. Dept. of Agr. & Consumer Serv.
Division of Plant Industry

DOLICHODORUS HETEROCEPHALUS COBB, 1914 (AWL NEMATODE)

R. P. Esser and H. L. Rhoades[1]

HISTORY: Awl nematode, Dolichodorus heterocephalus, was first described from specimens collected at Silver Springs, Florida, in 1914..

REGULATORY STATUS: This pest is prohibited entry into the states of Arizona and California.

GEOGRAPHIC DISTRIBUTION: Florida (widespread), Massachusetts, Michigan, New Jersey.

HOST RANGE: Acer rubrum, Agati grandiflora, Andropogon virginicus, Apium graveolens, Arecastrum romazoffianum, Brassica oleracea var. capitata, Camellia japonica, Capsicum sp., Carya floridensis, Casuarina sp., Celtis laevigata, Citrus aurantium, Cyperus sp., Dianthus plumarius, Eleocharis dulcis, Eremochloa ophiuroides, Fragaria sp., Gladiolus sp., Impatiens balsamina, Juncus sp., Juniperus silicicola, Liquidambar styraciflua, Livistona chinensis, Lycopersicon esculentum, Myrica cerifera, Nymphaea sp., Paspalum urvillei, Phaseolus vulgaris, Pinus elliottii, Pinus palustris, Pinus taeda, Podocarpus macrophylla, Polystichum adiantiforme, Quercus virginiana, Roystonea regia, Sabal palmetto, Saccharum officinarum, Scirpus validus, Stenotaphrum secundatum, Taxodium sp., Tradescantia fluminensis, Vaccinium corymbosum, Zea mays, Zoysia japonica.

HABITAT: Awl nematode is found in moist to wet soil, in low areas of fields, around irrigation ditches, and other bodies of fresh water.

HABIT: The pest feeds as an ectoparasite (fig. 1). Feeding sites include small or large roots, root tips, and the

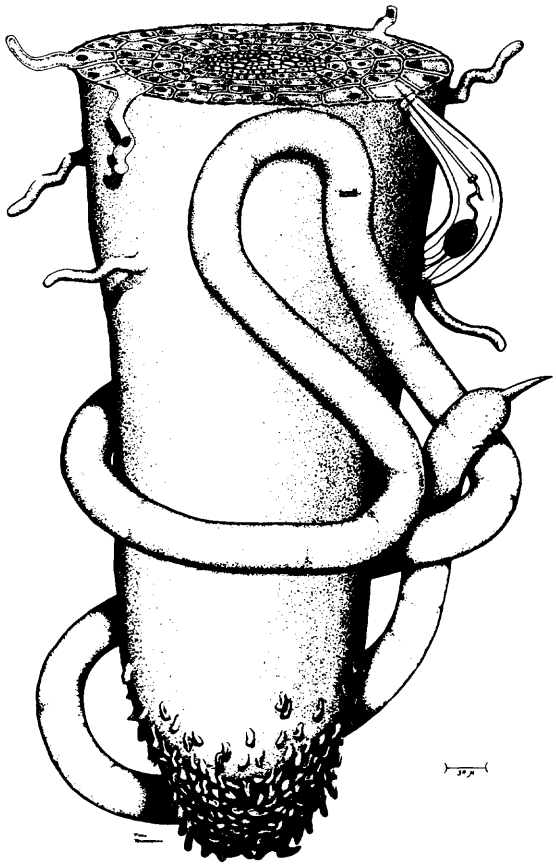

Fig. 1. Awl nematode feeding on tomato root tip.

[1] Nematologist, IFAS, Agricultural Research and Education Center, P. O. Box 909 Sanford, Fla. 32771

hypocotyl. After inoculation (12 hr) the nematodes feed at or near the root tip. After several days the cells become brownish yellow and brown lesions form at the feeding site resulting in tissue disorganization, root curvature, and moribund root tips.

Fig. 2. Celery plants. Left: stunted by awl nematode. Right: healthy plants.

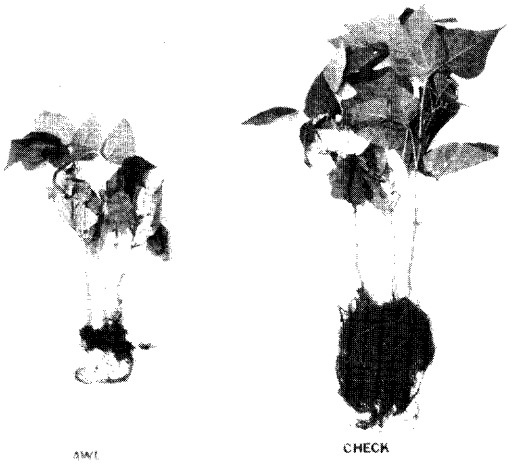

Fig. 3. Bean plants. Left: 3 awl nematode infested plants with depleted roots. Right: 3 plants without awl nematode.

SYMPTOMS: Severe stunting of the entire plant occurs (fig. 2). Older leaves are chlorotic with some necrosis. Roots are coarse and depleted with stubby-tips (fig. 3). Root galls or lesions may also occur. Secondary roots are generally stubby and greatly reduced in number.

DAMAGE: Severe root injury and stunting occurs on celery (50% yield reduction), corn, beans, cabbage, lettuce, carrots, and tomato. Pepper suffers less damage. Seed germination is prevented when the awl nematode penetrates the seed coat and damages the embryo or feeds on the newly emergent root tip.

COMPLEX: Pythium sp., Rhizoctonia sp., and Fusarium sp. have been associated with awl nematodes in celery seedbeds having severe root-rot.

CONTROL: Preplant fumigation with D-D, DBCP, EDB, or methyl bromide has effectively controlled this pest. Indications are that organic phosphate and carbamate nematicides seem to be less effective on this nematode than many others and that high rates may be required for control.

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